

This listing of the claims will replace all prior versions and listings of the claims in the application.

Listing of the Claims:

1. (Currently Amended) An automatic transfer switch (ATS) system comprising:
a first input port for receiving alternating current from a first power source;
a second input port for receiving alternating current from a second power source;
a first internal component that requires internal power satisfying a first criterion with respect to at least one characteristic in order to properly operate; and
~~the first input port and to the first input port,~~
a power converter coupled to the first internal component[[,]] and coupled simultaneously to the first input port and the second input port, wherein the power converter receives alternating current input power by way of the first and second inputs ports and converting the input power into the internal power to be provided to the first internal component, and
wherein the internal power provided by the power converter satisfies the first criterion, even though the at least one characteristic of the input power varies within a range.

2. (Original) The ATS system of claim 1, the at least one input port is capable of receiving first and second input powers from first and second external power sources, and wherein the power converter is capable of combining the first and second input powers to provide the internal power.

3. (Original) The ATS system of claim 1, wherein the power converter includes a rectifier section and a switch mode regulator section coupled to one another.

4. (Original) The ATS system of claim 3, wherein the power converter further includes a first filter section that couples the rectifier section and the switch mode regulator section.

5. (Original) The ATS system of claim 4, wherein the power converter further includes a second filter section that is coupled to the switch mode regulator section

6. (Original) The ATS system of claim 5, wherein the input power is provided to the rectifier section, the internal power is provided from the second filter section, and each of the first and second filter sections operates as a low-pass filter.

7. (Original) The ATS system of claim 3, wherein the at least one input port includes a first input port that is capable of receiving a first input power from a first power source and a second input port that is capable of receiving a second input power from a second power source.

8. (Original) The ATS system of claim 7, wherein each of the first and second input powers has three phases in an arrangement that is one of a delta arrangement, a wye arrangement and a corner-grounded delta arrangement, and

wherein two of the three phases of each of the first and second input powers are coupled to the rectifier as the input power.

9. (Original) The ATS system of claim 7, wherein the rectifier section includes a first diode array that receives the first input power and a second diode array that receives the second input power, wherein the first and second diode arrays respectively rectify the first and second input powers, wherein respective first output terminals of each of the first and second diode arrays are coupled to one another and respective second output terminals of each of the first and second diode arrays are coupled to one another so that an overall rectified power based upon either or both of the first and second input powers is developed.

10. (Original) The ATS system of claim 4, wherein the switch mode regulator section includes a transistor, a switching control device, and a transformer having first, second, third and fourth transformer terminals,

wherein the first transformer terminal is coupled to a first output terminal of the rectifier section, wherein the second transformer terminal is coupled to a transistor, which in turn is coupled to the switching control device, wherein the fourth transformer terminal is coupled to a first diode that in turn is coupled to a second diode by which a feedback signal is provided to the switching control device, wherein a junction between the first and second diodes is coupled to the third transformer terminal by at least one capacitor, and wherein the internal power is based upon an intermediate power provided by way of the junction and the third transformer terminal.

11. (Original) The ATS system of claim 10, wherein the switch is a transistor is a MOSFET and the switching control device is a microcircuit that outputs a pulse width modulated signal to the MOSFET based upon the feedback signal.

12. (Previously Presented) The ATS system of claim 1, wherein the criterion is that a voltage of the internal power remains at one of substantially 12 Volts DC and substantially 5 Volts DC.

13. (Original) The ATS system of claim 1, wherein the power converter includes a switch mode power supply (SMPS) and a switch mode regulator coupled to an output terminal of the SMPS.

14. (Original) The ATS system of claim 13, further comprising a second internal component that requires secondary internal power satisfying a second criterion in order to properly operate, wherein internal power satisfying the first criterion is provided at the output terminal of the SMPS and the secondary internal power satisfying the second criterion is provided by the switch mode regulator.

15. (Original) The ATS system of claim 14, wherein the first internal component includes at least one of a relay and a digital remote option board, and the second internal component includes a microprocessor.

16. (Original) The ATS system of claim 1, wherein the at least one characteristic of the input power that varies is a voltage of the input power, which varies within one of a first range of 0 to 300 Volts AC and a second range of 300 to 600 Volts AC.

Claims 17-19. (Canceled)

20. (Previously Presented) In an automatic transfer switch (ATS) system, a method of providing internal power to an internal component within the ATS system based upon input power received from first and second external power sources, wherein the internal power provided to the internal component satisfies a criterion despite variation of at least one characteristic of the input power, the method comprising:

rectifying the input power at a rectifier to produce rectified power; and
converting the rectified power into a modified rectified power by way of a switching mechanism, wherein the internal power is based upon the modified rectified power, and wherein the converting includes

developing a feedback signal indicative of an aspect of the modified rectified power that can vary as a result of the variation of the at least one characteristic of the input power;
and

adjusting the converting in response to the feedback signal so that the internal power based upon the modified rectified power satisfies the criterion.

21. (Original) The method of claim 20, further comprising filtering the rectified power by way of a first low-pass filter before converting the rectified power; and
filtering the modified rectified power to develop the internal power.

22. (Original) The method of claim 20, wherein the input power includes a first input power from a first of the external power sources and a second input power from a second of the external power sources, and wherein the rectifier simultaneously rectifies each of the first and second input powers and combines the first and second input powers to generate the rectified power.

23. (Original) A power conversion device capable of being coupled to at least first and second power sources and providing a low-voltage output power based upon a combination of first and second powers provided by the first and second power sources, respectively, the power conversion device comprising:

a rectifier section including

a first diode array capable of receiving and rectifying the first power and

a second diode array capable of receiving and rectifying the second power,

wherein output ports of the first and second diode arrays are coupled to one

another so that the rectified first and second powers are combined to form a first modified power;

a switch mode regulator section coupled to the rectifier section, wherein the switch mode regulator provides a second modified power based upon the first modified power; and

at least one filter section coupled to at least one of the switch mode regulator section and the rectifier section,

wherein the low-voltage output power is one of the second modified power and a filtered power provided as a result of operation of the filter section upon the second modified power.

24. (Previously Presented) An automatic transfer switch (ATS) system for selectively connecting a load to a first input power and a second input power each having three phases of alternating current, the ATS system comprising:

an internal component within the ATS system that requires, for its operation, internal power satisfying a first criterion;

a first input port for receiving the three phases of the first input power;

a second input port for receiving the three phases of the second input power; and

a switch mode power supply that is connected to only two phases of the first input power and to only two phases of the second input power and converting the first and second input powers into the internal power satisfying the first criterion even though at least one characteristic of the input power varies within a range, the switch mode power supply operatively coupled to supply the internal power to the internal component.

25. (Previously Presented) The ATS system of claim 24 further comprising a switch mode regulator coupled to an output terminal of the switch mode power supply and producing secondary internal power satisfying a second criterion.

26. (Previously Presented) The ATS system of claim 24 wherein the switch mode power supply comprises a rectifier section that converts the input power into direct current, a first filter section coupled to the rectifier section and receiving the direct current, a switch mode regulator section connected to the first filter section and having an output connection, and a second filter section that is coupled to the output connection.

Claim 27. (Canceled)

28. (Previously Presented) The ATS system of claim 1 wherein the power converter comprises a switch mode power supply (SMPS) from which the internal power is provided.

29. (Previously Presented) The ATS system of claim 1 wherein the internal power provided by the power converter is a direct current.

30. (Previously Presented) The ATS system of claim 24 wherein the switch mode power supply is simultaneously connected to the first input power and to the second input power.